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Studies in the Flora of the Central Gulf Region.—I.

BY CHARLES LOUIS POLLARD.

The Central Gulf Region, comprising the States of Alabama and Mississippi, has been neglected by collectors to an extent that is surprising in view of the interest attaching to its flora; a condition of affairs, doubtless due to the fact that Professor S. M. Tracy and Dr. Charles Mohr, both zealous field workers, have been most generous in supplying material for investigation. In the course of several months' study of Mississippi and Alabama *Cassias*, I had observed that in these southern specimens, as well as in Florida material, there was apt to be uniform variation from northern types as I understand them. With the object, therefore, of supplementing herbarium work by field observations, I spent a month in Mississippi during the past summer, for the most part exploring the Gulf coast, although some time was put in at Waynesboro, near the northern limit of the pine belt and at the Agricultural College, on the northeastern quarter of the State. During this visit over four hundred plants were collected, and I have since been afforded the opportunity of examining the collections made later in the summer, throughout substantially the same area, by Mr. T. H. Kearney, of the Department of Agriculture, to whom I am greatly indebted. Mr. Charles Schuchert, of the National Museum, made a collection of plants late in the fall, in the neighborhood of Meridian and Waynesboro, Mississippi, and in adjacent portions of Alabama; these specimens, which are of great interest as containing a number of the characteristic fall composites, Mr. Schuchert kindly turned over to me, and they will be reported upon in a subsequent paper. Professor S. M. Tracy, of the Mississippi Agricultural Experiment Station, also placed in my hands a large number of specimens obtained in every quarter of the State, and for these, as well as for his many kindnesses and cordial hospitality, I would return sincerest gratitude. I have thus been enabled to examine a large portion of the known flora of Mississippi and to verify, by actual observations in the field, a number of conclusions previously drawn.

Probably the most conspicuous, and certainly the most interesting feature of this flora, is the extension of types from the

Florida peninsula westward along the Gulf coast. It is a common experience to find in southern Mississippi, for example, a plant which, according to Dr. Chapman's work, is an exclusive inhabitant of south Florida; and it is quite as often that species actually assigned to Mississippi do not match the characters given for them in the book. These circumstances serve to emphasize the necessity for much critical field work in this area, and a careful study of southern species in the light of modern taxonomic principles.

The following notes are based on my own collections, the first set of which is deposited in the United States National Herbarium, the remainder having been already distributed. The determinations of the Gramineae were made by Professor Tracy, and of the Cyperaceae by Dr. N. L. Britton, to whom I would extend thanks, as also to Dr. J. K. Small, Mr. Frederick V. Coville, Dr. J. N. Rose, Professor L. M. Underwood, Mr. P. A. Rydberg, Mr. G. B. Sudworth, and Dr. G. N. Best, for their courtesy in naming certain groups.

ADIANTUM CAPILLUS-VENERIS L.

This beautiful fern was found for the first time in Mississippi, as far as I have been able to ascertain, at Waynesboro, Wayne County, near the Alabama line. On my arrival at the village I at once observed it growing in pots and hanging baskets about the veranda of the hotel, and supposed it had been brought from some distance; but inquiry elicited the fact that the locality was only a few miles away, and the son of my good landlady, a young man whose knowledge of local plant-names is very extensive, readily volunteered his services as guide. The fern grew on the steep banks of the creek, in rather damp soil, the fronds for the most part pendent, and growing so dense that other vegetation was entirely excluded.

STIPULICIDA SETACEA Michx.

A single specimen was obtained on Deer Island, in Biloxi Bay, and others were observed; the range is thus extended considerably westward.

ASIMINA PARVIFLORA (Michx.) Dunal.

One specimen, with nearly ripe fruit, was collected at Waynes-

boro, but Prof. Tracy kindly furnished me with additional material obtained by him in the previous spring at Columbus, in the northern part of the State.

CASSIA MULTIPINNATA Pollard, Bull. Torr. Club, 22: 515. 1895.

This species, together with the low, diffuse *C. multipinnata Nashii*, is the only small-flowered *Cassia* in the coast region, as it is in Florida. I visited the type locality for *C. Mississippiensis** near Ocean Springs, but the extremely abundant form mistaken by Prof. Tracy for this species proved to be beyond question *multipinnata*. The distinguishing feature of the latter is found in its very numerous and exceedingly narrow leaflets. In travelling northward through the state, we find that the *multipinnata* belt overlaps the belt of the true *nictitans*, and occasionally specimens of evident hybrids may be collected. In the mountains of northern Alabama, Dr. Mohr has found typical *nictitans*, but it barely enters Mississippi.

The late-blooming feature of *multipinnata* was again observed. At the time of my departure from the State on August 20, no trace of a flower could be detected on any of the plants examined, although here in Washington at the same time the seed-pods of *nictitans* were rapidly maturing. Prof. Tracy supplied flowering specimens of *multipinnata* from Starkville on September 1, and from Biloxi on September 15. (Nos. 1349 and 1422.)

CASSIA DEPRESSA Pollard, Bull. Torr. Club, 22: 515. 1895.

This occurs in some abundance along the coast, blooming in September. (No. 1423.) *C. Chamaecrista* is not common until the interior is reached, but abounds everywhere northward, being at its prime in August.

CASSIA ROBUSTA Pollard.

Cassia Chamaecrista robusta Pollard, Bull. Torr. Club, 21: 219. 1894.

The type of this species is a specimen in the herbarium of Columbia University, collected by Dr. C. W. Short in the mountains of Kentucky. It is without fruit, and I did not at the time feel warranted in giving it more than varietal rank. Last year a plant similar in appearance was sent me by Professor Tracy, bear-

* Bull. Torr. Club, 21: 219. 1894.

ing mature pods which at once attracted attention by their recurved position. I cultivated garden specimens from seeds of this plant, and when in Mississippi visited the locality whence it was originally obtained. Not having access to my former type, and appreciating its distinctness from *Chamaecrista* I gave a partial diagnosis of it as a new species in a note presented before Section G at the Buffalo meeting of the Association. The plant must, of course, assume the varietal name originally assigned to it. (No. 1276.)

CASSIA ASPERA MOHRII Pollard, n. var.

Aspect of *C. aspera*: hispid pubescence and leaflets as in that species, except that both surfaces of the leaflets are hoary with stiff white hairs; petiolar gland depressed-cupuliform, substipitate.

Type in the herbarium of the U. S. Geol. Surv. of Alabama, collected in Mobile in 1878 by Dr. Mohr, to whom the variety is dedicated.

PHASEOLUS SINUATUS Nutt. T. & G. Fl. N. Am., 1:279. 1838.

Specimens of this were obtained, not yet in flower, near Ocean Springs. (No. 1017.) I have not been able to find a previous record of its appearance west of Florida.

DAUBENTONIA LONGIFOLIA (Cav.) DC. Mem. Legum. 285. 1825.

The discovery of a plant on the coast of Mississippi (No. 1001) hitherto known only from Texas and Mexico, and as a ballast immigrant at Pensacola, Florida, is of interest as illustrating the tendency of the western gulf flora to move eastward, just as the Florida peninsula flora in so many cases exhibits a northwestward extension. While undoubtedly originally introduced, this showy plant now figures prominently along the sea-beach at Biloxi and other coast towns, and with its large, bright yellow flowers and four-winged, many-seeded pods, ought never to be mistaken for the nearly-related *Glottidium Floridanum*, which grows in the same region. The characters of the legume separate *Daubentonia* and *Glottidium* from *Sesbania* fully as clearly as similar characters distinguish any Mimosaceous genera. In *Sesbania* we have a pod which is narrow, elongated, tetragonal, and many-seeded, usually torulose. *Glottidium* has a short compressed pod, two-seeded,

with a thick, coriaceous epicarp splitting away at maturity from the membranous endocarp, which remains investing the seeds. *Daubentonia* has a several-seeded, compressed and often torulose legume, the central portion of the winged valves becoming indurated over the seeds, and hence never dehiscent.* A more striking contrast of characters in a group of nearly related genera it would be hard to find elsewhere in the Leguminosae.

The bibliography of the species is involved in some obscurity, owing to the fact that all copies in this country of one of the works concerned, Ortega's *Hortus Matritensis*, are apparently incomplete, and to the resultant fact that the synonymy has been thrown into confusion by later writers. The genus *Daubentonia* was based by De Candolle upon *AEschynomene longifolia* Cav., and *Piscidia punicea* Cav. Reference to the latter's work shows the plate of *A. longifolia* to be an excellent and unmistakable reproduction of our Texano-Mexican plant.

In addition to the two species of *Daubentonia*, De Candolle describes in *Prodromus* 2 : 265 a species of *Sesbania* under the name of *S. longifolia*, for which he cites as a synonym Ortega's *AEschynomene longifolia*, referring to the plate of the latter in the ninth decade of the *Hortus*. In his characterization of the species he uses the words "leguminibus linearibus torulosis acutis," which cannot apply to anything but a true *Sesbania*. It is thus evident that De Candolle understood with great clearness the fact that Ortega and Cavanilles had described two different plants under the same binomial appellation (*AEschynomene longifolia*), the former of which he transferred to *Sesbania*, and the latter he raised to generic rank; by this means he preserved the same specific for each. It is due to the efforts of later botanists to combine both forms under *Sesbania* that most of the trouble has originated. Among British authorities, especially, there has been a surprising tendency to jump at conclusions, and, as it would seem, to avoid the proper verifications of references, since a very superficial examination of the pages above cited would have afforded a solution.

The genus *Daubentonia* is taken up by Torrey and Gray, and the citations are correctly given.† On the other hand, Hemsley,

* For a good figure of this type of legume, see Fig. 117, Engl. & Prantl. *Nat. Pflanzenf.* Theil 3 : 279, 1894, under *Sesbania punicea*.

† Torr. & Gray, *Fl. N. Am.* 1 : 294. 1838.

in Vol. I, p. 263, of the *Biologia Centrali-Americana*, enumerates *Sesbania longifolia* DC., with its synonym *AEschynomene longifolia* Ortega, but refers, for an example, to Parry and Palmer's No. 209, from Central Mexico, which is beyond question *Daubentonia*. No mention whatever is made of Cavanilles' plate, and we are forced to conclude that Mr. Hemsley imagined the two species to be identical. Dr. Watson appreciated this error, and remarks * "*Sesbania Cavanillesii* Watson, *Daubentonia longifolia* DC., * * * No. 209, Parry and Palmer belongs to this species, not to *S. longifolia* DC., which, according to the description is very different." The Index Kewensis makes matters worse, as follows :

AEschynomene longifolia Cav. Icon. 4: 8. t. 316. = *Piscidia longifolia*.

AEschynomene longifolia Orteg. Hort. Mat. Dec. 9: 70. = *Sesbania Cavanillesii*.

This is most remarkable when we recollect the fact that both the synonyms cited belong exclusively to the *AEschynomene* of Cavanilles, not to that of Ortega, which should, of course, have been referred to *Sesbania longifolia* DC., a name admitted by the Index in another place, as that of a valid species.

In Coulter's Botany of Texas† appears a very good diagnosis of our plant under Watson's name, *Sesbania Cavanillesii*. It is there quoted as "abundant on the lower Rio Grande and also near San Antonio." Specimens in the National Herbarium are as follows: Texas, Dr. Schlottman; Schott, 1853, Bravo del Norte; J. F. Joor, 1875, Harrisburg; Berlandier, no. 3132; Palmer, San Antonio, 1880, no. 278; Harvard, 1884; Nealley, 1889, no. 76; Florida, Pensacola, Curtiss, no. 590.

Specimens of *Sesbania longifolia* DC., are represented as follows: Guadalajara, Jalisco, Mexico, Palmer, no. 237, 1886; Pringle, no. 4738, 1894. These specimens are instantly recognizable as true *Sesbanias*, having linear torulose legumes and ovate-lanceolate leaflets.

It is, therefore, quite evident that whether these two species are regarded as congeneric or are separated, one of them must take a name other than *longifolia*, which belongs, by right of pri-

* Proc. Am. Acad. 17: 342. 1882.

† Contr. Nat. Herb. 2: 281. 1891.

ority to the plant of Cavanilles.* The Mexican plant must, therefore, take a new designation, and the synonymy and citation of the two species will then stand as follows :

SESBANIA MEXICANA nom. nov.

AEschynomene longifolia Ortega. Hort. Matr. Dec. 9: 70. 1800.
Not Cav.

Sesbania longifolia DC. Prodr. 2: 265. 1825.
Mexico, state of Jalisco.

DAUBENTONIA LONGIFOLIA (Cav.) DC. Mem. Legum. 285. 1825.

AEschynomene longifolia Cav. Icon. 4: 8. pl. 316. 1797. Not Ortega.

Piscidia longifolia Willd. Sp. Pl. 3: 920. 1800.

Sesbania Cavanillesii S. Wats. Proc. Am. Acad. 17: 342. 1882.

Mexico and southern Texas along the Gulf coast to western Florida.

CLIFTONIA NITIDA Banks; Gaertn f. Fruct 3: 246. pl. 225. 1805.

Mylocaryum ligustrinum Willd. Enum. Hort. Berol. 454. 1809.

Cliftonia ligustrina Sims; Spreng. Syst. 2: 316. 1825.

A rare plant in many localities, but in Mississippi not uncommon on the coast. (No. 1040.)

KOSTELETSKYA VIRGINICA SMILACIFOLIA Chapm. Fl. S. States 57.
1860.

It is with some hesitation that I refer no. 1164 to this variety. The hastate leaves agree entirely with Dr. Chapman's description, but the flowers in my specimens are pure white. This plant, as well as typical *K. Virginica*, was obtained in the vicinity of Biloxi.

AMMANNIA COCCINEA Rottb. Pl. Hort. Havn. Descr. 7. 1773.

Specimens of unusual size were collected at the Agricultural College (No. 1309), and distributed erroneously as a new species of *Rotala*. The status of our American *Ammannias* is somewhat uncertain, owing to the ambiguity of the Linnaean *A. latifolia*. Dr. Koehne † has very properly distinguished two species, one with long style and capsule and fugacious petals, for which he adopts the

* The ninth decade of Ortega's work did not appear before 1800, as stated by De Candolle, whose reference I have not at hand.

† Engler's Bot. Jahrb. 1: 249-251. 1880.

name *coccinea* of Rottboell, and another of more southerly range with very short style and no petals, for which the name *latifolia* is taken up. The question yet in doubt, it seems to me, is whether the type of Linnaeus' species was really a short-styled plant. The only figure cited is from Hans Sloane's History of Jamaica, a work which I have been unable to examine. Dr. Britton has described still a third species.* *A. Koehnei*, which apparently combines the characters of the other two in having the petals of *coccinea* and the short style of *latifolia*; but it is by no means certain that this floral character is constant.

RHEXIA FLORIDANA Nash, Bull. Torr. Club, 2: 150. 1895.

Another illustration of the northwestward extension of the Florida flora. Typical specimens of this *Rhexia* were collected at Biloxi on July 29 (No. 1096), and were easily distinguishable by their narrowly linear leaves and the dark olive-green hue of the whole plant from the abundance of *R. Mariana* growing in the immediate vicinity.

RHEXIA LANCEOLATA Walt. Fl. Car. 129. 1788.

A species accepted by Torrey and Gray, but reduced by Cogniaux in his Monograph† to *R. Mariana*. The totally different color of the flowers, a feature of importance in this genus, as well as the glabrous calyx of *R. lanceolata*, points to its specific validity. Specimens were obtained at Ocean Springs (No. 1077).

HYDROCOTYLE BONARIENSIS Lam. Encycl. 3: 153. 1788.

Mr. J. N. Rose furnishes me with the following note on this rare species: "The collection of *Hydrocotyle Bonariensis*, a southern Mexican and South American species, in Mississippi is of interest. This species is entirely new to the United States, except that the variety *Texana* occurs in a single locality in southern Texas. It belongs, of course, near *H. umbellata*, and may sometimes be mistaken for that species. The inflorescence, however, is different, as *H. umbellata* usually has a simple umbel, while *H. Bonariensis* has numerous elongated rays with a number of interrupted whorls of flowers."

* Bull. Torr. Club, 18: 271. 1891.

† Cogn. in DC. Mon. Phan. 7: 388. 1891.

SABBATIA BRACHIATA Ell. Bot. S. C. & Ga. 1: 284. 1817.

It is quite possible that Michaux had this plant in mind as the type of his *Chironia angularis* var. *angustifolia*;* the description of the latter is too meagre, however, to warrant a change in the name without further research.

NERIUM OLEANDER L. Sp. Pl. 209. 1753.

Abundant on the beaches along the coast as an escape from gardens and in many places apparently spontaneous.

ASCLEPIAS VERTICILLATA LINEARIS (Scheele).

Asclepias linearis Scheele, Linn. 21: 758. 1848.

Asclepias verticillata var. *subverticillata* A. Gray, Proc. Am. Acad. 12: 71. 1876.

Only two specimens of this variety were obtained (no. 1006, Ocean Springs). It is distinguishable from the type by the opposite rather than verticillate leaves.

ASCLEPIAS AMPLEXICAULIS Michx.

Abundant in the sand on Deer Island, off the coast of Biloxi. (No. 1186). Walter's characterization of his *A. humistrata* as "floribus rubris" leads me to doubt the propriety of taking up his name for the species.

LEONOTIS NEPETAEFOLIA R. Br.

A tropical African plant sparingly adventive throughout the South, but in the coast region of Mississippi a common weed.

MESOSPHAERUM RUGOSUM (L.).

Clinopodium rugosum L. Sp. Pl. 588. 1753.

Hyptis radiata Willd. Sp. Pl. 3: 84. 1800.

This labiate is common in southern Mississippi. The genus *Mesosphaerum*, founded by Patrick Browne in 1756, has thirty years' priority over *Hyptis* of Jacquin.

TEUCRIUM NASHII Kearney, Bull. Torr. Club, 21: 484. 1894.

My specimens of this handsome *Teucrium*, collected on Prof. Tracy's grounds near Biloxi (no. 1075), exactly match Mr. Kearney's type from Florida.

* Fl. Bor. Am. 1: 146. 1803.

GRATIOLA HISPIDA (Benth.).

Sophronanthe hispida Benth.; Lindl. Intr. Nat. Syst. Ed. 2, 445. 1836.

Gratiola subulata Baldw.; Benth. DC. Prodr. 10: 405. 1846.

This little plant, which bears when growing an aspect similar to that of a small *Phlox*, was found in abundance on Deer Island (No. 1187). I am by no means convinced that a comparative study of the species of *Gratiola* will not justify Bentham's original segregation of *G. hispida* as a distinct genus.

RUELLIA HUMILIS Nutt. Trans. Am. Phil. Soc. (II.) 5: 182. 1833-7.

Ruellia ciliosa var. *longiflora* A. Gray, Syn. Fl. 2: Part 1, 326. 1878.

This species was found by Nuttall on the low, scarcely caulescent plant of which my number 1221, collected at Waynesboro, is representative. Specimens are in the National Herbarium obtained by Curtiss in Florida (no. 149), and also by Nash (no. 183) in the same State. Dr. Gray afterwards included it in his variety *longiflora* of *R. ciliosa* Pursh. The original description gives no warrant for applying the name *humilis* to the tall leafy plants that are known everywhere as typical *ciliosa*; and even in cases where the stem is more than usually elongated, the obovate obtuse leaves are always so distinguishable from the ovate more or less acute leaves of the latter species.

CARDUUS LECONTEI (T. & G.).

Cirsium Lecontei T. & G. Fl. N. Am. 2: 456. 1841.

Cnicus Virginianus Hook. Comp. Bot. Mag. 1: 48. 1835. Not Pursh.

A single specimen of this handsome species was collected in a moist pine barren near Ocean Springs.

CARDUUS NUTTALLII (DC.).

Cirsium Nuttallii DC. Prodr. 6: 651. 1837.

Cnicus glaber Ell. Bot. S. C. & Ga. 2: 270. 1824. Not *Carduus glaber* Nutt. Gen. 2: 129, 1818, nor Steud. Nom. Ed. 1, 152. 1821.

This species being exclusively southern in its range, it is probable that Nuttall's *Carduus glaber*, referred in his description to New Jersey, is a form of *C. muticus*.

STOKESIA LAEVIS (Hill) Greene, Eryth. 1: 3. 1893.

Carthamus laevis Hill, Hort. Kew. 57. pl. 5. 1769.

Stokesia cyanea L'Her. Sert. Angl. 27. 1788.

Cartesia centauroides Cass. Bull. Philom. 1816: 198. 1816.

This beautiful plant, usually considered the rarest of the Compositae, is extremely abundant along the whole length of the Mississippi coast, growing in dry or moist pine-barrens, and bearing a striking resemblance to a large *Aster*.

ERIANTHUS TRACYI Nash, Bull. Torr. Club, 24: 37, 1897.

A fine new species of *Erianthus*, collected only in a single locality in the vicinity of the Agricultural College, near Starkville. (No. 1341.)

Proceedings of the Club.

TUESDAY EVENING, FEBRUARY 9, 1897.

The President occupied the chair and there were about 200 persons present.

The minutes of the last meeting were read and approved.

The President reported the following appointments of Committees:

Committee on Finance: J. I. Kane, Wm. E. Wheelock, M.D.

Committee on Admissions: Cornelius Van Brunt, Jeannette B. Greene, M.D.

Library and Herbarium Committee: Eugene P. Bicknell, Helen M. Ingersoll, Wm. E. Wheelock, M.D., Marie L. Sanial.

Committee on Local Flora.—Phanerogamia: Prof. Thos. C. Porter, N. L. Britton, Ph.D., H. H. Rusby, M.D. Cryptogamia: Prof. L. M. Underwood, Maria O. Le Brun, Smith Ely Jelliffe, M.D.

Committee on Mosses: Mrs. Elizabeth G. Britton.

The regular program was then taken up, being a lecture by Henry A. Siebrecht, entitled "Orchids, their Habitat, Manner of Collecting and Cultivation."

The paper was handsomely illustrated with lantern slides by Mr. Cornelius Van Brunt, colored by Mrs. Van Brunt.